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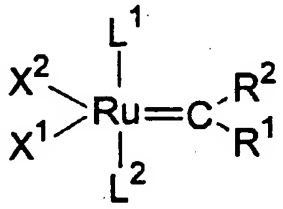
Abstract:

Akylidene complexes of ruthenium containing N-heterocyclic carbene ligands and their use as highly active, selective catalysts for olefin metathesis

The invention relates to a complex of ruthenium of the structural formula I,



I

where X^1 and X^2 are identical or different and are each an anionic ligand,
R^1 and R^2 are identical or different and can also contain a ring, and R^1 and R^2 are each hydrogen or/and a hydrocarbon group,
the ligand L^1 is an N-heterocyclic carbene and the ligand L^2 is an uncharged electron donor, in particular an N-heterocyclic carbene or an amine, imine, phosphine, phosphite, stibine, arsine, carbonyl compound, carboxyl compound, nitrile, alcohol, ether, thiol or thioether,
where R^1, R^2, R^3 and R^4 are hydrogen or/and hydrocarbon groups.

The invention further relates to a process for preparing acyclic olefins having two or more carbon atoms or/and cyclic olefins having four or more carbon atoms from acyclic olefins having two or more carbon atoms or/and from cyclic olefins having four or more carbon atoms by an olefin metathesis reaction in the presence of at least one catalyst, wherein a complex is

used as catalyst and R'^1, R'^2, R'^3 and R'^4 are hydrogen or/and hydrocarbon groups.